USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003CT27B

Title: Long-Term Impact Analysis of the University of Connecticut's Fenton River Water Supply Wells on the Habitat of the Fenton River

Project Type: Research

Focus Categories: Ecology, Groundwater, Surface Water

Keywords: baseflow, fisheries, surface-groundwater relationships

Start Date: 11/01/2002

End Date: 10/31/2004

Federal Funds Requested: $ 0.00

Matching Funds: $450031.00

Congressional District: 2nd

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Abstract: Part of a satisfactory finding by the State of Connecticut, Office of Policy and Management (OPM) of the University of Connecticut's (UConn) Environmental Impact Evaluation for the North Campus Master Plan, requires that UConn conduct a study to determine whether and how water withdrawals from the University's Fenton River water supply wells affect the aquatic habitat of the Fenton River. As part of the impact assessment of UConn's water use, we propose to investigate the relationships between fish habitat and instream flow for a section of the Fenton River from Old Turnpike Road to Mansfield Hollow Lake.

The specific objectives of this study are:

· To develop relationships between instream flow in the Fenton River and habitat suitability for selected fish species;
· To develop the relation--using existing data, new data collection, and mathematical simulation modeling--between the magnitude and timing of ground-water withdrawals and stage and discharge in the Fenton River, principally from Old Turnpike Road to Stone Mill Road; and

· To mathematically model selected water-management scenarios to optimize water withdrawals while minimizing adverse impacts on streamflow

The overall goal of the study is to develop relationships between instream flow rates in the Fenton River and habitat availability for selected fish species and life stages. We will use the Instream Flow Incremental Methodology (IFIM) to assess flow requirements for fishes in the Fenton River.

Whether and how ground water withdrawals affect instream flow and aquatic habitat in this area of influence of the Fenton River is likely to be a complex relationship. An objective of this study is to form a better understanding of the complexity of this relation. Ground water withdrawals can be managed to minimize impacts on streamflow and fish habitat. Streamflow has a delayed response to ground water withdrawals.

The timing and rates of withdrawals with respect to periods of ground water recharge and periods that are critical for fish populations can be managed to minimize impacts. Because field data collection is unlikely to take place during drought conditions, the best way to assess the complex interactions of these components is through a simulation model. An objective of this study is to use the modified Level A model to investigate selected options for the management of water withdrawals. The study team will work closely with the University of Connecticut, the Connecticut Department of Environmental Protection, the Connecticut Department of Health, the Office of Policy and Management, the Town of Mansfield and the interested public to communicate and coordinate results of the study as it progresses. We propose quarterly meetings of this group commencing one month after initiation of the project.
